Bridge Designs

Tar River Bridge:

The Tar River Bridge design features a “top down” construction method divided into two work segments, north and south of the Tar River. The equipment consists of two custom-built overhead self-launching truss systems, each approximately 450 ft. long. Each system will be designed to be a totally self-contained bridge-building machine. It will be capable of driving piles, erecting the bent caps, erecting the girders, and pouring the deck. This will eliminate the need to erect a temporary work bridge along the length of the bridge with the goal of streamlining the construction sequencing, reducing the construction costs, minimizing wetland impacts, and eliminating temporary wetland impacts from any work bridges. This proven technology used in the United States and overseas for other types of construction will be improved and customized to construct the wetland portions of the Tar River Bridge.

NC 33 Bridge and Interchange Configuration:

Flatiron/United’s design includes a major concept change at the NC 33 interchange. Instead of carrying the US 17 Bypass over NC 33 as proposed in NCDOT’s preliminary plans, the Team has revised the design to take NC 33 over US 17. Based on the topography of the area, lowering of the US 17 grade in combination with raising NC 33 produces a more natural fit with the surrounding terrain and reduces borrow quantity, stream and wetland impact areas at Maple Branch (Sta.251+00) and the Maple Branch tributary (Sta. 270+00). This revision does not adversely affect roadway design nor negatively impact access

to the abutting properties along NC 33. The proposed NC 33 structure is a 2-span precast concrete beam bridge over US 17 with conventional end bents. The proposed deck section provides a 5-lane curb and gutter facility with sidewalk on both sides.

Bridges over US 264 and 15th Street:

Both of these structures will feature a single span precast concrete beam arrangement with MSE wall abutments. As a value-added feature, both structures are designed to provide deck sections with 10- feet outside rail offsets rather than the permitted minimum 4-feet paved shoulder offsets. Recognizing US 17 as a high speed, 70-mph arterial freeway, this safety enhancement matches the Tar River structure rail offsets and NCDOT's normal freeway rail offset criteria.